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ABSTRACT

The facts that most public services are delivered by subarea and that subareas can be identified by the socioeconomic status of the residents, often lead to discrimination in service delivery based on the wealth or prestige of the subareas. It follows that citizen satisfaction with services delivered might vary from sector to sector within a city. A study of residents' satisfaction with trash collection and police service delivery in Wilmington, Delaware, indicates that analysis of data by subarea provides information on variations in citizen satisfaction that were not apparent when the data were analyzed on an aggregate, city-wide level. The study suggests that decision makers who formulate policy on the basis of data should be aware that analyzing data from different perspectives provides different types of information. Furthermore, the study implies that by collecting and analyzing public service data according to well-defined subareas rather than by considering data in the aggregate, policy makers can plan for appropriate service delivery measures that maintain or increase citizen satisfaction. (Author/MJL)

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**CITIZEN SATISFACTION WITH PUBLIC SERVICE DELIVERY: A COMPARATIVE
STUDY OF CITYWIDE VS. SUBAREA ANALYSIS**

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Abstract

The issue of how survey data on public service delivery should be analyzed was explored. Based upon social stratification and locational theories and the spatial characteristic of public service delivery, it was argued that data analyzed by subarea is more appropriate and provides better information to decisionmakers (concerned with citizen input into the policy process) than data analyzed in the aggregate (i.e., citywide).

Data on citizen satisfaction with the delivery of trash collection and police services were analyzed in the aggregate and then by subarea. It was demonstrated that micro-level analysis provides a sounder information base for generating policy alternatives and decisionmaking.

CITIZEN SATISFACTION WITH PUBLIC SERVICE DELIVERY: A COMPARATIVE STUDY OF CITYWIDE VS. SUBAREA ANALYSIS

Introduction

Social scientists (e.g., Harris and Ullman, 1945; Michelson, 1970; Berry, 1973) describe the spatial organization of contemporary society in terms of land-use patterns and locational decision issues. The Multiple-Nuclei Theory (Harris and Ullman, 1945) suggests that specialized functions (e.g., retail districts, industrial districts; residential districts) evolve in a nodal fashion. Similar activities group together because they are compatible and complementary; dissimilar activities locate at some distance from one another because of a potentially deleterious effect. For example, retail districts do not locate adjacent to heavy industry because of the smoke and dirt which usually accompanies heavy industrial activities. On the other hand, a mix of retail activities will locate close to residential areas. A retail district poses no overt (e.g., excessive pollution; perceived or actual decrease in property values) threat to the residential area. In reality, the retail district which locates in close proximity to a residential area enhances the attractiveness of that area as a place to live because of increased convenience for shopping, for example.

The characteristics of residential areas vary according to their geographic location within the city. The interface of economics and social mobility has created homogeneous residential nodes which are distinguishable by social class (Berry, 1973). Indeed, social stratification theory postulates that a high degree of differentiation among groups within a society occurs concomitantly with technological advancement. As societies or communities evolve into more or less integrated social systems, the people come to occupy social positions which "entitle them to rewards that are differentiated by levels of prestige or status,

degrees of power or influence, incomes and amounts of wealth, and lifestyles" (Gist and Fava, 1974: 329). Suttles (1972: 247) argues that

the main lines of differentiating (between neighborhoods) are the dimensions of stratification which are pervasive to the entire society: race, ethnicity, income, education and the like. Indeed most communities in the United States can be and are described in these terms.

Most public service delivery is organized and implemented by management units (i.e., planning districts or some other subdivisions of the city). Given this spatial characteristic of public service delivery and the differentiation in society attributable to social stratification, there is the potential for the quality and/or quantity of services delivered to vary from area to area. That is, areas can be identified by the socioeconomic status of the residents. It is possible, then, for services to be delivered discriminantly predicated on the wealth or prestige of the subareas (Cox, 1973; Rice, 1978). For example, trash collection may be uniform throughout the city but with the newer or better maintained equipment assigned to the higher status sections. Thus, some areas might receive poorer levels of service delivery because of frequent equipment breakdown.

Decisionmakers concerned with improved service delivery and maintaining high levels of citizen satisfaction with services need to be alert to the types of information provided them. Much of policy formulation occurs within the Rational Model of Decisionmaking. Goals and objectives are defined, alternatives generated, and data collected to ascertain the most efficient and effective alternative given stated goals and objectives. However, the manner in which information is analyzed is critical if effective policies are to be formulated.

Although public policies, in general, are conceived and implemented for the city as a unit, aggregate data analysis may not be appropriate. This is especially applicable to public services because service delivery has a spatial

characteristic. Thus, there is a potential for services to be delivered differently to different areas of the city. It follows, then, that citizen satisfaction with services delivered might vary from section to section of the city. Data analysis by subareas taking into account some of the characteristics (e.g., average income of residents; racial majority) of each subarea should provide decisionmakers with information which has greater relevance for policy decisions given a goal of obtaining and maintaining high levels of citizen satisfaction with public service delivery.

The purpose of this paper is to demonstrate how the form (i.e., aggregate vs. subarea) the data analysis takes can affect conclusions and policy. For purposes of illustration, data on citizen satisfaction with the delivery of trash collection and police service delivery in Wilmington, Delaware is used to demonstrate differences in information generated when data are analyzed in the aggregate compared to subarea analysis.

Data Analysis Issues

Existing research in the area of citizen satisfaction with public service delivery is limited. The majority of research efforts have been of a case study nature and either encompassed an entire city (e.g., Aberbach and Walker, n.d.; Durand, 1976) or larger spatial configurations (e.g., Marans and Rodgers, 1975; Warner and Burdge, 1979) such as metropolitan areas. The two studies which explored citizen satisfaction with public services (Lovrich and Taylor, 1976; Tannian, 1977) by subareas report and discuss findings using contingency tables to display percentages. That is, the percent of respondents expressing satisfaction or dissatisfaction with the delivery of public services was presented and analyzed for some sections of the city. There was no attempt to explore the issue of differences in satisfaction between the various residential areas.

Daneke and Klobus-Edwards (1979) note that although survey research is becoming a widely used tool by local government, data from these surveys remain underutilized. This underutilization stems from relatively simplistic types of data analyses employed by most researchers/analysts reporting results of the survey to decisionmakers. More informative and useful knowledge and policy recommendations could be forthcoming if data were analyzed in different ways (e.g., by subarea; viewing population characteristics within subareas; focusing upon differences in levels of variables such as income and education). For example, rather than reporting levels of satisfaction with police service delivery among black vs. white residents, information which has greater relevance for policy recommendations might be gleaned by assessing these issues on first a subarea basis and second by socioeconomic and demographic characteristics of respondents living within each subarea. Many public services are delivered to defined spatial areas as a matter of policy. Therefore, when policy recommendations are predicated, in some part, upon the results of the surveys, analysis of the survey data should reflect the spatial component (Keeton, 1982).

Aggregate vs. Subarea Analysis

The data which are the basis of this analysis are the responses of 484 Wilmington, Delaware residents to a survey. A random stratified sample design reflected the relative population densities of the twelve planning districts within a $\pm 5\%$ error parameter. A sample of 484 distributed in 12 units presents problems with generalizing from the sample to the population. Therefore, 12 units are collapsed into 5. Based upon the tenets of social stratification theory, criteria of racial/ethnic, educational, and income homogeneity formed the basis for dividing the city into 5 subareas (see Appendix A for analysis of variance of subarea homogeneity). Additionally, dummy variables were employed for subarea and satisfaction in the analysis of variance component of this study

to create an interval level of measurement (Blalock, 1979).

A citywide view of residents' satisfaction of trash collection and police service delivery (Table 1) indicates that a large proportion of citizens are basically satisfied with the delivery of these services. However, there is no information available on where the satisfied respondents live compared to the dissatisfied respondents or the distribution of missing cases. Given the spatial

Table 1

Satisfaction with Service Delivery Citywide

<u>Trash Collection</u>		<u>Police Services</u>	
% Satisfied	% Dissatisfied	% Satisfied	% Dissatisfied
76.3	23.7	82.9	17.1
N = 447		N = 245	

characteristics of trash collection and police service delivery, it is possible that a relationship exists between service delivery satisfaction and area of residence (Table 2). Additionally, it is possible that a majority of those persons expressing dissatisfaction are concentrated in a few areas rather than being distributed evenly throughout the city. Thus, for decisionmaking purposes, analysis of data on a subarea by subarea basis provides information which could provide a basis for changes in service delivery with a goal of increasing citizen satisfaction.

Analyzing responses by homogeneous subareas provides more detailed information on the variation in satisfaction with service delivery. Satisfaction with trash collection services varies little from area to area. There is not a significant relationship (Table 3) between satisfaction with trash collection services and area of respondents' residence. This suggests that trash collection services are delivered uniformly from section to section of Wilmington assuming

Table 2

Satisfaction with Service Delivery by Subarea

	Trash Collection		Police Services	
	% Satisfied	% Dissatisfied	% Satisfied	% Dissatisfied
Central	80.5	19.5	92.5	7.5
CBD Outer Ring	80.0	20.0	75.7	24.3
Southeast	79.2	20.8	78.0	22.0
Southwest	73.2	26.8	78.6	21.4
Brandywine	70.2	29.8	97.4	2.6

N = 447

Chi Square = 4.64 (n.s.)

N = 245

Chi Square = 12.16*

*p < .02

Table 3

Analysis of Variance of Satisfaction with Trash Collection by Subarea

<u>Source of Variation</u>	<u>df</u>	<u>F</u>	<u>Significance of F</u>
Subarea	4	1.16	.33
Residual	442		

N = 447

citizens' criteria for assessing service delivery were generally similar.

However, the differences in satisfaction with the delivery of police services in some areas (i.e., Central and Brandywine) are stark compared to others (i.e., CBD Outer Ring, Southeast and Southwest). An analysis of variance (Table 4) substantiates the existence of a significant relationship between satisfaction with police service delivery suggested by the chi square analysis in Table 2.

Table 4
Analysis of Variance of Satisfaction with Police Service Delivery
by Subarea

<u>Source of Variation</u>	<u>df</u>	<u>F</u>	<u>Significance of F</u>
Subarea	4	3.13	.015
Residual	240		

N = 245

Thus, it can be concluded that policymakers, with a goal of maintaining or increasing levels of satisfaction with police service delivery, need to investigate in-depth the ostensible problem revealed by this brief analysis.

Conclusions

Decisionmakers who operate within analytical frameworks (e.g., Rational Model) which use data as a basis for formulating policy need to be cognizant of the different information which can be gleaned by viewing data from various perspectives. Indeed, the nature and attributes of the problem should dictate how data are analyzed.

Most public services have a spatial characteristic. Because of this spatial component, there is the potential for services to be delivered differently to various residential sections. It is also possible for service delivery policy to reflect the spatial quality. Although much of the literature (e.g., Cox, 1973; Rice, 1978) emphasizes the negative aspects of services delivered discriminantly depending upon the characteristics (e.g., racial; relative wealth; age) of the subareas, there is a positive component. If policymakers assess citizen demand for public services and deliver some mix of services to the subarea predicated, in part, upon citizen input into the process, services

will have been delivered discriminantly to sections of the city but with a goal of maintaining or increasing citizen satisfaction.

A way in which decisionmakers can be assured of a good fit between citizen demand and public service delivery is to collect and analyze data according to well-defined subareas. This paper has succinctly demonstrated how survey results can provide more information for policy decisions if public service delivery data are analyzed by subarea. Of course, there are many other ways in which data could and should be analyzed for input into the policy process. For example, subarea demographic and/or socioeconomic characteristics should be taken into account in the analysis of citizen satisfaction data in order to control for spurious and/or intervening relationships (Stipak, 1979).

The key issue addressed in this paper is how data should be analyzed to supply decisionmakers with more comprehensive information upon which to base public service delivery decisions. It was demonstrated that analysis of data by subarea provided insights which were not available from aggregate (i.e., citywide) analysis of the same variables in the data set. Thus, in order to gain maximum input from data analyses, policymakers need to be cognizant of the methods employed in the analysis so as to ascertain that the information received is accurate, relevant, and useful in the policy process.

APPENDIX A

Analysis of Variance of Subarea Homogeneity

<u>Source of Variation</u>	<u>df</u>	<u>F</u>	<u>Significance of F</u>
Race	1	3.5	.06
Education	2	7.6	.001
Income	3	2.1	.08

N = 349

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